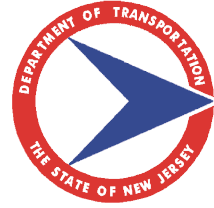


New Jersey Department of Transportation

1035 Parkway Avenue, PO Box 600, Trenton, New Jersey 08625-0600

Baseline Document Change Announcement



Revisions to NJDOT Design Manual for Bridges and Structures, 4th Edition

BDC04MB-01

August 20, 2004

Subject: Revisions to NJDOT Design Manual for Bridges and Structures, 4th Edition

Interim revisions have been made to the NJDOT Design Manual for Bridges and Structures, 4th Edition. This BDC contains revised pages that stipulate the Interim Revisions. They have been designed to replace the corresponding pages in the manual and are accordingly numbered.

The vertical line in the right side margin indicates the line that has been changed. To maintain your copy of the manual, please replace the appropriate pages in the manual with those in this BDC.

An explanation of the respective changes is as follows:

Division 1 – Policies

Page 1-2, the title of Subsection 1.7.2 is changed to “Alternate Retaining Wall Systems”. This title is more appropriate for the guidance that is provided in the Subsection.

Subsection 1.1-2 – Reference Publications

Page 1.1-2, editing is done to provide the proper title to the reference publication.

Subsection 1.3.2 – Vehicular Bridge Structures

Page 1.3-4, changes have been made to the Note designations of the Table and a Title is provided for the left most column.

Page 1.3-5, Note 3 has been edited to better clarify alternate route criteria allowance. Also, it is now more clearly stated that for the listed roadway classification, a vertical underclearance of less than 14'-6" will not be permitted.

Page 1.3-8, a definition is provided to define the span length that is to be considered when designing for the deflection limitation of the continuous span superstructure.

Pages 1.3-21 and 1.3-22, editing has been done to clarify the AASHTO Specifications that are to be used for designing substructure and foundation elements. Also, the current Edition of the AASHTO Standard Specifications is now stated.

Subsection 1.3A.1 – Vehicular Bridges

Page 1.3A-7, editing has been done to the definition of a span length when designing for deflection of a continuous span. Also, the live load deflection for pedestrian bridges is changed to be consistent with the criteria that are established for LRFD designs.

Page 1.3A-10, the designation of the AASHTO Standard Specifications has been updated.

Subsection 1.4.1 – Design Criteria

Page 1.4-1, the reference to “Con-Rail” is removed from the statement that establishes the design load for rail carrying bridges and structures. The design guidance is now generic.

Subsection 1.5.2 – Geometrics

Page 1.5-3, an editorial change is made to Subpart g. “Upper” roadway is now stated versus “lower” roadway.

Subsection 1.7.1 – General

Page 1.7-3.

A Vessel Collision Report is added to the Preliminary Submission requirements identified in subpart c.

The Design Appraisal Statement item is changed to Design Recommendation Summary. This is consistent with the Pipeline terminology.

Subsection 1.7.2 – Retaining Walls

Page 1.7-3, the title of Subsection 1.7.2 is changed to “Alternate Retaining Wall Systems”. Editing has been done to paragraph a. to clarify the type of alternate retaining wall systems that may be constructed.

Subsection 1.7.3 – General Notes

Page 1.7-7, notes formerly in parenthesis concerning the Retest Limits have been removed. A Baseline Document Change (BDC) issued on February 7, 2003 included changes to the formerly referenced Table 914-4 of the NJDOT Standard Specifications. As included in the BDC, Table 914-4 no longer specifies the Retest Limit that is equal to the design compressive strength; therefore, the Design Manual’s previous reference is no longer consistent.

Subsection 1.8.3 – Alternate Retaining Wall Submissions

Page 1.8-2, editing has been done to item 2. to better clarify what is required when site conditions limit the wall type system selection. Also, submission of calculations to verify the internal stability analysis is now required.

Subsection 1.9A.1 – Concrete Bridge Decks

Page 1.9A.2, an editorial correction is made in subparagraph (d) (2). The word “roper” is changed to “proper”.

Subsection 1.9A.6 – Superstructure Replacements or Bridge Widening Projects

Pages 1.9A-4 and 5, with the issuance of the AASHTO Manual for Condition Evaluation and Load and Resistance Factor Rating (LRFR) of Highway Bridges, it can now be referred to for guidance on the substructure analysis that is required for widening projects. The guidance that was contained in the Manual was based on the unpublished AASHTO Manual guidance.

Subsection 1.9B.2 – Contract Pay Items and Quantities

Page 1.9B-3, an overtype printer error (the word “This”) is corrected in Note 5.

Subsection 1.9C.3 – Recommended Restoration Procedures

Page 1.9C-10, Procedures Table, editing to the “Testing” row of the permanent “Restoration” column is done to clarify that Steps 1 & 2 are the probable steps that will be necessary in the recommended procedure.

Subsection 1.10A.3 – List of Bridge Pay Items

Page 1.10A-7, pay items are added for Relief slab and Sleeper slab Integral Abutment work.

Subsection 1.12.2 – Plan Preparation for Design

Page 1.12-4

1. A change to English unit measurements is made in Item A.3.
2. A reference on the use of overlays is now included in B.1.

Subsection 1.13.1 – General

Page 1.13-1, a change is made to remove “parapets” as a permitted element where utilities may be attached.

Subsection 1.13.2 – Location

Page 1.13-1, an editorial change is made to subpart c. to reference Section 34 of the Manual for guidance on Utility attachments.

Subsection 1.13.3 – Installation and Plan Requirements

Page 1.13-1, an editorial change is made in subpart a. The word “unusually” is changed to “usually”.

Subsection 1.15.3 – Design Procedure Guidelines

Page 1.15-4, the title of Subpart B. is changed to “Skew Angle/Curved Girders”. A sentence is added to establish that horizontally curved girder bridges cannot be designed as integral abutment type bridges.

Page 1.15-5, in the 1st sentence of the 2nd paragraph of item 3., the word “hold” is changed to “hole”.

Page 1.15-6, to be consistent with changes that are made to the Standard Drawings, the references in items 2 & 3 are changed.

Page 1.15-12, in item 4. the type of joint filler material is better defined.

Subsection 1.15.4 – Construction Procedures

Page 1.15-13:

To be consistent with the changes to the Standard Drawings, the entire Subsection is re-written.

Page 1.15-14:

Pay items for payment of Sleeper slabs and Relief slabs are clarified.

Subsection 1.15.5 – Semi-Integral Abutment Design

Page 1.15-14 a grammatical error is corrected in the 2nd paragraph of Subpart B. The word “conceptional” is changed to “conceptual”.

Subsection 16 – Foundations Design Criteria

Page 1.16-1, to be consistent with the changes on page 1.3-12, changes are made to the narrative for Foundation Design Criteria.

Subsection 1.16.5 – Prestressed Concrete Pile Connections

Page 1.16-8, this subsection is added to provide guidance for the titled work.

Subsection 1.17.2 – Abutments and Walls, Design Parameters

Page 1.17-3, item number 6 is edited to clarify the permissible deflection of cantilever sheet pile retaining walls.

Subsection 1.17.3 – Alternate Retaining Wall Systems

Pages 1.17-3 through 1.17-6, changes are made to more clearly establish the types of Alternate Retaining Wall systems that are permitted. Also, guidance on a height limitation is established for proprietary wall systems.

Subsection 1.18.1 – Design Criteria

Page 1.18-1, Guidance on Abutment design is referenced to the Section 3 criteria.

Subsection 1.19.3 – Railroads

Page 1.19-2, a change is made to identify the contact for obtaining specific information regarding excavation adjacent to railroad tracks. The Bureau of Civil Engineering is now identified vs. the Utility and Railroad Engineering Unit

Subsection 1.19.9 – Vessel Collision

Page 1.19-6, previous paragraph 4.e., that was located on page 1.19-7, is moved to be paragraph 2. Existing paragraph 2. is deleted. This paragraph establishes the basis for assigning the Importance Category (IC) for bridges crossing navigable waterways

Subsection 1.20.1 – High Performance Concrete (HPC) Deck Slabs

Page 1.20.1, a paragraph is added and editing is done to state that sidewalks, parapets, and curb lines are also to be constructed with HPC.

Subsection 1.20.2 – Design Criteria

Page 1.20-2, Subpart g. is added to provide direction for the design of deck overhangs.

Subsection 1.20.5 – Corrosion Protected Reinforcement in Deck Slabs

Page 1.20.4, a change is made to require that both layers of reinforcement in the top slab of culverts are to be corrosion protected when the top slab is the riding surface.

Subsection 1.20.8 – Haunches on Stringer Bridges

Page 1.20-9, a sentence is added to require a minimum haunch dimension of 1 inch.

Subsection 1.20.9 – Concrete Placing Sequence

Page 1.20-10

1. A reference to the NJDOT Standard Specifications is added to Item b.
2. Guidance on designing transverse construction joints, when planning for a deck placing sequence, is changed to not be just a consideration. The joint is to be designed as an edge beam.

Subsection 1.20.10 – Machine Finishing

Page 1.20-10, a correction is made to Item 2). The word “that” is changed to “than”.

Subsection 1.20.11 – Approach Slabs

Page 1.20-11, a change is made to the Approach Slab requirements for bridges not on the State highway system. Either of the described circumstances will exclude provision of approach slabs.

Subsection 1.21.1 – Fixed and Expansion

Page 1.21-1, a correction is made to the single gap occurrence limitation measurement. The previous defined measurement was in error.

Subsection 1.21.3 – Strip Seal Expansion Dams

Page 1.21-3, an editorial change is made in subpart e. to describe the direction in which the allowable joint width is to be measured.

Subsection 1.23.1 – Fencing Warrants

Page 1.23-1, the word “may” is removed from the sentence that introduces the conditions for fencing warrants.

Page 1.23-2, changes are made to the fencing requirements for Pedestrian bridges and ramps. For new and existing pedestrian bridges, enclosed fencing is required for stairs and ramps as well as the bridge itself.

Subsection 1.23.2 – Types of Parapets, Bridge Railings

Page 1.23-4, a paragraph is added to state that according to the AASHTO LRFD provisions, crash tested bridge railing systems do not have to be re-designed. Also paragraphs are added to provide stipulations for the use of architectural enhancements to bridge railings.

Subsection 1.24.2 – Type of Steel

Page 1.24-1, clarification on use of HPS hybrid girders is provided in the 4th paragraph of subpart (a).

Subsection 1.24.7 – Camber

Page 1.24-5

1. The word “sag” is changed to “crest” in the second sentence of the first paragraph under Camber Table.
2. Editorial change has been made to reference pages.

Subsection 1.24.18 – Paint Coating Systems

Page 1.24-13 & 15, due to page renumbering, reference to page numbers are changed.

Page 1.24-18, editing has been done to correct the text alignment. A paragraph is added to provide guidance on finish color selection.

Subsection 1.24.19 – Weathering Steel

Page 1.24-20

The identification of the Guide Plate for drip plate detailing is changed to Guide Plate 3.9-23 vs. 3.9.23.

Clarification is provided on the type of bearing systems that are to be designed and those that are to be designed via shop drawing submissions in A.1.

Subsection 1.24.20 – Bearing Devices

Page 1.24-22, editing is done to reference the location of the bearing Load Group Table.

Subsection 1.25.4 – Design/Construction Criteria

Page 1.25-6, an editorial change has been made to remove a repetitive line in Item 11. of the Subsection.

Subsection 1.25.9 – Continuity Design for Live Load

Page 1.25-11, in the comparison Table, a change is made to correct a metric unit designation in the “Deck Diaphragms at Pier” comparison.

Subsection 1.26.1 – Reinforcement Presentation

Page 1.26-1, the paragraph titled “Soft Metric Reinforcing Bars” has been designated to be subpart “a.”.

Page 1.26-3, subpart “b.” has been added to specify the locations where corrosion protected reinforcement is required. Also, subpart “c” is added to identify the types of permitted corrosion protected reinforcement.

Page 1.26-5, due to page renumbering, reference to page number is changed.

Subsection 1.27.1 – The NJDOT Standard Specifications

Page 1.27-1, a column has been added to designate the design compressive strength value for the various classes of concrete.

Subsection 1.30.5 – Design Criteria for Precast Reinforced Concrete Box Sections for Culverts

Page 1.30-3, a correction is made to the AASHTO Subsection reference for the design criteria of precast culverts.

Subsection 1.32.2 – Variable Message Sign (VMS) Support Structures

Pages 1.32-2, 3, 5 and 6, with the issuance of the 2001 Edition of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals editing is done to reference its criteria for the fatigue design of VMS support structures.

Subsection 1.32.6 – Standard Drawings

Page 1.32-9, subpart a. has been edited to remove the reference to availability of mylars of the sign support structure standard drawings.

Subsection 1.32.8 – General

Page 1.32-10, a sentence is added to subpart f. to state that sign panel locations are to be measured from the centerline of an end post.

Pages 1.32-11 thru 14 and 16, the right most moment column is changed to correct unit conversion errors.

Subsection 1.38.1 – General

Page 1.38-1, a change is made to subpart (a) to remove the reference to the CPS software.

Subsection 1.40.3 – Cantilever and Overhead Sign Structures

Page 1.40-2, a sentence has been added to state that assigned structure numbers for sign support structures should be indicated on the contract plans.

Subsection 1.41.2 – Evaluation Criteria

Page 1.41-2, a paragraph has been added to state the requirement for performing an inspection and rating analysis of a new or replacement bridge structure.

Subsection 1.45.2 – General

Page 1.45-2, a paragraph is added to subpart 7. to establish the Performance Level for the use of the NCHRP Report 472 seismic design criteria.

Subsection 1.45.5 – Seismic Retrofit of Existing Highway Bridges

Page 1.45-5, subpart 2. is rewritten to establish the Performance Category for seismic retrofitting of bridge structures. Also, guidance on addressing retrofit needs is provided.

Page 1.45-6, editing is done to the third bullet of subpart 3.b. to better define retrofitting limits and editing is done to the reference in subpart b.1.

Subsection 1.46.1 – General

Page 1.46-1, subparts 2 and 3 are edited to better define the flood intervals for scour designs.

Subsection 1.46.2 – Preliminary Scour Analysis

Page 1.46-3, the current NJDEP Technical Manual is now referenced in part d.

Subsection 1.46-5 – Scour Countermeasure Development Procedures

Page 1.46-12, a clarification is made to the criteria for locating a footing at the proper scour depth elevation.

Subsection 1.47.1 – General

Page 1.47-3, the combined height, exposure and location coefficient (C_c) is changed in Table 47-4. The change is a result of the issue of the 2002 Interim to the AASHTO Guide Specifications for Structural Design of Sound Barriers wherein the coefficient was changed.

Division II – Standard Drawings

2.2-1, the material designation for the $\frac{3}{4}$ " x 2" studs for connecting the rails to the post is changed to F1554 Grade 36 in the respective notes.

2.2-2, note 8 is expanded to provide tolerance settings for the post anchor bolts and note 9 is edited to specify the corrected material designation and to state that the bolting is to be done in an alternative pattern.

2.2-3, note 4 is expanded to reference permitted types of corrosion protected reinforcement. In the Elevation view for Section A-A, the reinforcement detailing is changed to indicate a contraction joint instead of a construction joint. In the Tube Splice Detail, the dimension of the connection pin is changed from a metric unit to the $\frac{1}{4}$ inch English unit. Note 12 is added to specify the payment provision for the steel railing component of the barrier.

2.2-4, in the Elevation view, the reinforcement detailing is changed to indicate a contraction joint instead of a construction joint. Note 4 is expanded to reference permitted types of corrosion protected reinforcement.

2.3-1, note 9 is expanded to reference permitted types of corrosion protected reinforcement.

2.4-1, 2.4-2, 2.4-3 and 2.4-4, the note under the "Schedule of Mild Steel Reinforcement" is expanded to reference permitted types of corrosion protected reinforcement.

2.4-3, in the "Typical Beam Sections" view, the reinforcement designation at the top of the beams is changed to metric units. This is consistent with current industry practice.

2.5-1 & 2.5-2, to make the drawing form generic, Tables that denoted specific plate sizes and other specific size component information are removed.

2.5-3, information for dimensioning a sole plate is removed. This permits a more generic presentation of the drawing.

2.6-1, the lettering panel is changed to denote the current year and the lettering panel legend is changed to denote future years.

2.6-2, dimensional changes are made to the Frame and Cover Junction box and a view of a 10" x 36" Junction box is provided.

2.8-1, in the Typical Noise Barrier Unit view, a note is added to denote a minimum 6 inch bed coarse of aggregate at the bottom of the caissons.

2.8-3, in the Plan view detail, the dimensions of the Neoprene Bearing Pad is changed to ½ inch thickness.

2.9-1 through 2.9-6, changes have been made to provide more current conceptual detailing for integral abutment detailing.

2.10-1, editing is made to the Concrete Design Stresses note and the limit of the Precast Wall Element is defined in the Work Items table.

2.10-2, a reference is added in Note 1 to provide guidance for types of permitted corrosion protected reinforcement.

2.11-1, a reference is added in Note 5 to provide guidance for types of permitted corrosion protected reinforcement.

2.11-2, a reference is added in Note 3 to provide guidance for types of permitted corrosion protected reinforcement.

Division III – Guide Plates

Page III-4, the reference to new Guide Plate 3.9-27 is added.

Page III-7, Guide Plate 3.16-1 has been re-titled to be for a HL-93 vehicle loading configuration.

3.1-3, the title for the In Charge signature has been changed.

3.1-4, the “Recommended By” and “Approved By” signature lines have been removed.

3.1-5, signature line titles have been changed to provide full titling for PE license holders.

3.3-1 and 3.3-2, a reference is added to clarify the requirement for a “seismic hook” in the footing detail. Also, Note 10 is added to clarify the types of permitted corrosion protected reinforcement.

3.3-3, the dimension from the edge of footing to the controlling slope protection point is changed from 3 feet minimum to 4 feet minimum.

3.4-1, Note 6 is expanded to reference the Section where corrosion protected reinforcement types are specified.

3.4-2, Note 3 is expanded to reference the Section where corrosion protected reinforcement types are specified.

3.4-3, Note 3 is expanded to reference the Section where corrosion protected reinforcement types are specified.

3.4-4, Note 2 is expanded to reference the Section where corrosion protected reinforcement types are specified.

3.4-7 & 3.4-8, indicator arrow to reference Note 7 is changed so that it does not point to the broken stone pocket that is to be placed around the under-drain pipe.

3.4-7, the stone pocket detail notes are changed to specify the type of geotextile material that is to be used around the stone pocket.

3.4-8, Note 1 is changed to state that the Common Structure Volume is to be governed by the “widest” limit of allowable alternates versus the “narrowest” limit. Also, the stone pocket is changed to specify the geotextile material requirement.

3.4-9 & 3.4-10, the title of the Plate has been changed to denote the Doublewal system. Note 5 which references backfill material guidance is changed to refer to the Standard Specifications. This addresses an inconsistency between previous Notes on the Guide Plate and the Specifications.

3.4-10, Note 1 is changed to state that the Common Structure Volume is to be governed by the “widest” limit of allowable alternate versus the “narrowest” limit.

3.4-11, note 1 is expanded to reference the types of permitted corrosion protected reinforcement. Other changes are made to provide general requirements for both type wall systems and to provide distinct requirements for the respective wall types.

3.4-12, Note 3 is changed so that there is consistency with the Standard Specifications’ criteria.

3.5-1, the note at the bottom of the Plate is expanded to reference the types of permitted corrosion protected reinforcement.

3.5-2, note 2 is expanded to reference the types of permitted corrosion protected reinforcement.

3.5-3, note 1 is expanded to reference the types of permitted corrosion protected reinforcement.

3.6-1& 3.6-2, note 4 is expanded to reference the types of permitted corrosion protected reinforcement.

3.7-1, note 4 is expanded to reference the types of permitted corrosion protected reinforcement.

#**3.8-11**, the width limitation for the preformed bituminous joint filler between the approach slab and the headwall has been changed from 2" to 1".

#**3.9-5**, the Bearing Stiffener detail is changed to remove the "plus fillet weld" requirement when the "mill to bear" method is used in connecting the plate to the flange. This is consistent with current AASHTO specifications.

3.9-27, Guide Plate is added to provide detailing for Shear Locks at deck slab open joint locations. This Plate was included in earlier Editions of the Manual. It is now re-inserted to address occurrences where shear lock provisions are needed.

3.10-1 & 2, note 3 is expanded to reference the types of permitted corrosion protected reinforcement.

3.10-3, note 1 is expanded to reference the types of permitted corrosion protected reinforcement.

3.10-4, note 5 is expanded to reference the types of permitted corrosion protected reinforcement.

3.10-5 & 7 & 8, note 5 is expanded to reference the types of permitted corrosion protected reinforcement.

3.10-15, note at the bottom of the Plate is expanded to reference the types of permitted corrosion protected reinforcement.

3.10-20, note 7 is expanded to reference the types of permitted corrosion protected reinforcement.

3.10-22 & 24, note 1 is expanded to reference the types of permitted corrosion protected reinforcement.

3.12-1, note 4 is expanded to reference the types of permitted corrosion protected reinforcement.

3.16-1, plate is changed to provide detailing for the HL-93 vehicle loading.

Implementation Code R (ROUTINE)

Changes must be implemented in all applicable Department projects scheduled for Final Design Submission at least one month after the date of the BDC announcement. This will allow designers to make necessary plan, specifications, and estimate/proposal changes without requiring the need for an addenda or postponement of advertisement or receipt of bids.

Recommended By:

Approved By:

ORIGINAL SIGNED

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LR:KS:DS

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